The Impact of Capital Structure on Firm Performance: Evidence from the Manufacturing Sector in India

A

SYNOPSIS

SUBMITTED TO THE

RAFFLES UNIVERSITY,

RAFFLES
UNIVERSITY

FOR THE PARTIAL FULFILLMENT

Of

DOCTOR OF PHILOSOPHY

In

COMMERCE

By

Aman Choudhary

(Admission No. 222023)

Under the Guidance and supervision of

Dr. Munesh Kumar
(Assistant Professor)

ALABBAR SCHOOL OF MANAGEMENT

RAFFLES UNIVERSITY, NEEMRANA

ALWAR, RAJASTHAN –301705

YEAR 2025

RAFFLES UNIVERSITY
Research Cell

(I)TITLE:

"The Impact of Capital Structure on Firm Performance: Evidence from the Manufacturing Sector in India"

(II) NAME OF SCHOLAR	: AMAN CHOUDHARY
(III) ADMISSION NUMBER.	: 222023
(IV) SUBJECT	: COMMERCE
(V) PROPOSED RESEARCH SUPERVISOR NAME	: Dr. Munesh Kumar
(VI) RESEARCH SUPERVISOR DESIGNATION	: Assistant Professor
(V) SCHOOL NAME	: Alabbar School of Management

Signature of Scholar

Signature and Seal of Guide

RAFFLES UNIVERSITY
Research Cell

1. Introduction

Capital Structure: Concept and Strategic Significance

Capital structure refers to the combination of debt and equity that a firm uses to finance its assets and operations. In corporate finance, this mix is a central strategic decision: debt financing brings tax deductible interest benefits but increases financial risk, whereas equity is more costly but imposes no fixed claims. A judicious capital structure can therefore enhance firm value by minimising the firm's weighted average cost of capital (WACC). For example, interest on debt creates a tax shield that can raise after tax returns, but excessive leverage may raise expected costs of financial distress and weaken operational flexibility. In essence, an optimal capital structure balances these trade offs, aligning financing policy with corporate goals of growth, profitability, and shareholder value. Because financing policy directly affects the cost of funding and risk borne by shareholders, it is understood to have profound implications for a firm's overall financial performance.

Theoretical Foundations of Capital Structure

Early theory provided sharply contrasting views. Modigliani and Miller (1958) famously showed that in a perfect capital market (no taxes, no transaction costs, symmetric information), the mix of debt and equity does not affect a firm's total value; capital structure is irrelevant. In practice, however, market imperfections mean financing choice matters. The **trade off theory** emerged to explain why most firms use some debt but refrain from extreme leverage. Kraus and Litzenberger (1973) and later, Miller (1977) and DeAngelo and Masulis (1980) argued that firms balance the benefit of the debt tax shield against the increasing costs of financial distress and bankruptcy. Under this view, there exists an optimal debt ratio where the marginal tax benefit of additional debt equals the marginal distress cost. Thus, firms with valuable tax shields tend to use more debt, but only up to the point where financial risk and agency costs begin to erode value.

An alternative is the **pecking order theory**. Introduced by Myers and Majluf (1984) based on Donaldson's earlier work, this model posits that firms have no fixed target debt ratio. Instead, they finance new investments first with internal cash flows, then with debt, and only issue equity as a last resort. Information asymmetries make external equity issuance relatively costly, so profitable firms will naturally use up retained earnings while higher risk or rapidly expanding

firms turn to debt financing first. The pecking order theory thus predicts a hierarchy of financing preferences, and implies that leverage varies as internal funds fluctuate and investment needs arise, rather than staying at a single "optimal" level.

More recently, **market timing theory** has been proposed. Baker and Wurgler (2002) argued that firms actively time the equity market: they issue equity when prices are relatively high (when the market values their shares generously) and repurchase shares or rely on debt when valuations are low. Under this view, observed capital structures are the cumulative outcome of past market conditions. In their words, "capital structure is the cumulative outcome of attempts to time the equity market". Market timing models imply that historical investor sentiment can leave long lasting imprints on a firm's leverage, so that capital structure reflects past market cycles as much as current profitability or tax considerations.

Together, these theories form the intellectual lineage of capital structure research. Modigliani Miller provides a benchmark irrelevant result; trade off theory introduces taxes and bankruptcy to explain moderate leverage; pecking order theory emphasizes information costs and financing preferences; and market timing theory incorporates dynamic equity pricing effects. Each framework identifies different motivations for debt and equity, and each has implications for firm value and risk. In practice, real firms may exhibit elements of all these theories depending on their environment and constraints. Importantly, the coexistence of multiple theories suggests that no single model fully explains all observed capital structures – especially in emerging markets like India where market imperfections, institutional factors, and government policies play significant roles.

Capital Structure in the Indian Manufacturing Sector

The relevance of capital structure theories must be evaluated within the unique context of India's financial and industrial environment. In particular, the Indian manufacturing sector—capital-intensive, policy-supported, and strategically important—presents an intriguing testing ground for theoretical predictions. The sector includes a wide variety of firms, ranging from debt-averse public sector giants to aggressively financed energy manufacturers, each navigating its own constraints and opportunities.

Take, for example, **Bharat Electronics Limited (BEL)** and **Hindustan Aeronautics Limited (HAL)**—both major public sector undertakings (PSUs) in India's defense manufacturing sector. As of FY2024, BEL maintains a nearly debt-free position, with a debt-to-equity ratio of just

0.0001 and a significant net cash surplus. HAL mirrors this conservative stance, having eliminated its outstanding debt and relying exclusively on internal accruals to finance its operations and capital expenditures. These cases reflect a deliberate aversion to leverage, shaped by consistent internal funding, sectoral predictability, and possibly a governance culture that prioritizes financial autonomy and risk minimization over tax-driven debt incentives. Their capital structures align less with the pursuit of optimal tax shields and more with stability, liquidity, and state-backed strategic purpose.

In contrast, **NLC India Limited**, another state-owned enterprise operating in the energy sector, exhibits a markedly different financing profile. With a gearing ratio of 1.17 as of FY2024, NLC relies heavily on debt to fuel its thermal and renewable energy expansion projects. This substantial leverage is not indicative of financial strain but rather a rational adaptation to its capital-intensive model, underpinned by regulated revenue streams and sovereign support. Here, debt is not a burden but a mechanism of scale, highlighting the interplay between sectoral demands and financing strategies.

Meanwhile, on the policy front, the Indian government's decision in 2019 to reduce the base corporate tax rate for most firms to around 25%, and further to a concessional 15% for newly incorporated manufacturing entities that commence operations within prescribed timelines, has reshaped the fiscal calculus for capital structure planning. These tax incentives theoretically increase the appeal of debt by enhancing the absolute value of interest-related tax shields, especially for greenfield manufacturing ventures. The move signals a broader policy push to incentivize industrial expansion through financial flexibility, making the capital structure decision increasingly consequential for emerging firms weighing cost of capital against operational risk.

These cases and policy shifts together demonstrate that capital structure decisions among Indian manufacturing firms are far from uniform. While some large entities prefer a minimal-leverage model to preserve liquidity and reduce exposure, others strategically embrace debt as a driver of expansion. This dispersion challenges the notion of a singular "optimal" capital structure and underscores the need to account for firm-specific characteristics, ownership structures, and sectoral realities. As India continues its industrial transformation, understanding how these financing decisions influence firm performance is not only academically relevant but vital for shaping competitive, resilient businesses.

Firm Performance: Accounting and Market Indicators

"Firm performance" can be assessed by multiple financial measures. In this study we consider both accounting based and market based indicators. Common accounting measures include **Return on Assets (ROA)** and **Return on Equity (ROE)**. ROA is the ratio of net income to total assets, reflecting how efficiently a company uses its asset base to generate profit . ROE is the ratio of net income to shareholder equity, capturing how effectively the firm earns returns on investors' capital. Both ROA and ROE are widely used in corporate finance as indicators of profitability and operational efficiency.

In addition, market based performance is proxied by **Tobin's Q**, defined as the ratio of the market value of a company to the replacement cost (or book value) of its assets. A Tobin's Q above one (1) implies that the market values the firm more highly than the cost of its assets – often interpreted as reflecting intangible value or growth prospects – whereas Q below one suggests the stock may be undervalued or that the firm's assets are not fully utilized. As a forward looking metric, Tobin's Q captures investor expectations and is sensitive to firm value beyond accounting profits. By using both accounting returns (ROA, ROE) and Tobin's Q, the analysis can link capital structure to both realized profitability and market valuation, providing a comprehensive picture of performance.

Linking Capital Structure to Performance and Rationale for Study

Given the above, the proposed research will empirically examine how capital structure (debt–equity mix) influences firm performance (measured by ROA, ROE, Tobin's Q) in Indian manufacturing. This approach treats capital structure as the independent variable and performance metrics as dependent variables. It explores patterns such as whether higher leverage (as a percentage of assets or equity) is associated with higher or lower profitability and value, controlling for firm and industry factors. Past studies suggest the need for such analysis: the empirical literature on Indian manufacturing is not settled on whether debt helps or hurts performance . In fact, one analysis in a broader sample of Indian firms finds evidence of positive correlations between certain capital structure variables and performance , while others find no clear effect.

The setting is particularly relevant now. India's manufacturing sector, while targeted for growth, still faces macroeconomic volatility and structural changes in the economy. Firms navigate shifts in demand, interest rates, and government policies (for example, the upcoming sunset of

corporate tax incentives). In this era of change, understanding how financing decisions impact resilience and growth is critical. As one recent review notes, "research on how capital structure affects business performance is crucial" for both theory and practical decision-making.By focusing on the manufacturing sector – a key driver of employment and exports – this study aims to fill gaps in the literature and inform managers and policymakers about optimal financing strategies. The insights could guide firms in choosing their mix of debt and equity and help regulators understand how taxation and financial policies translate into firm-level outcomes. In sum, given India's evolving industrial landscape and mixed empirical evidence to date, this investigation is timely and necessary to clarify the strategic impact of capital structure on firm performance in Indian manufacturing

2. Literature Review

Early theoretical work laid the foundation for understanding leverage and firm value. DeAngelo and Masulis (1980) formalized the trade-off theory, showing that corporate and personal taxes create an optimal debt ratio by balancing tax shields against bankruptcy costs. Ross et al. (1999) similarly outline in corporate finance texts that debt can both boost firm value (through tax savings) and raise risk (through fixed obligations). Leading finance textbooks (Brigham & Ehrhardt, 2002; Van Horne et al., 2008) elaborate on these ideas, emphasizing that leverage's impact on performance depends on firm-specific tax situations, bankruptcy risk, and agency costs. These works establish that, in principle, capital structure should influence firm outcomes – but they also imply the relation may be contextual. For example, Shah (1997) notes that macroeconomic and regulatory reforms can alter firm performance and thus indirectly affect optimal leverage choices. In other words, country- and industry-level factors (such as India's post-reform environment) must be considered alongside pure theory.

Empirical studies on Indian firms confirm a diverse set of outcomes. In a pioneering analysis, Singh (2013) examined Indian companies and found a strong negative association between leverage and profitability, i.e. highly leveraged firms tended to report lower ROA and ROE . This suggests that, for his sample, the costs of debt (financial distress, interest burden) outweighed any benefits. Movalia (2013) reported similar findings in the manufacturing sector, reinforcing the view that excessive debt can erode returns in India's firms.

More recent research continues to show mixed evidence. Mishra and Datta (2017) reported that higher debt ratios significantly reduce profitability for Indian manufacturers. However, Kumar and Kaushal (2017) – studying 60 companies across automobile, electronic, and metal industries – found sector-specific effects: leverage had no significant impact on performance in the automobile sector, but exerted a statistically significant influence in the electronic and metal sectors. In that study, some profitability measures rose with leverage in certain industries, while they fell in others, indicating that industry characteristics mediate the leverage–performance link. Sahni and Sharma (2017) examined five large FMCG firms and found a contrasting result: firms that operated entirely with equity financing (no long-term debt) tended to enjoy higher profitability, implying a positive correlation between capital structure and returns in their context. In other words, because those firms carried little or no debt, better performance coincided with the prevailing capital structure. This study thus highlights how very low leverage can coincide with higher profits, again underscoring that the debt–performance relationship is nuanced and may even reverse depending on firm financing mix.

The 2018 literature adds further nuance. Gupta et al. (2018) investigated Indian manufacturing firms and generally found that financing mix continues to matter for firm metrics. Marisetty (2018) provided a broad survey-like perspective and reported only limited correlations between leverage and profitability in Indian companies, suggesting no strong or consistent effect (Marisetty, 2018). In a focused study of Indian manufacturing industries, Mehta (2021) analyzed debt ratios and financial returns across multiple sectors. Mehta's correlation analysis shows that firms with higher debt-to-equity ratios tended to have lower ROA and ROE (negative correlation coefficients of –0.42 and –0.19, respectively), while total debt showed some positive covariance with returns. Overall, Mehta concludes that the link between debt and performance is generally inverse in his sample (higher leverage tends to coincide with weaker returns).

Finally, international evidence underscores the variability of results. For example, Olusola et al. (2022) examined large, publicly traded firms in Hong Kong and found the capital structure–performance nexus to be largely inconclusive. Their panel analysis from 2012–2018 showed only a very small and statistically insignificant impact of leverage on return on assets. This finding – that higher debt neither clearly helps nor hurts profitability in that context – echoes the mixed results seen in India.

Overall, the literature highlights no clear consensus on how leverage affects firm performance. Several Indian studies (e.g. Singh, 2013; Mishra & Datta, 2017) report that greater debt generally erodes profitability, while others (Kumar & Kaushal, 2017; Sahni & Sharma, 2017) document positive or neutral effects under certain conditions. Textbook theory and surveys suggest that factors like industry dynamics, firm size, tax regimes, and governance all shape the outcome. These mixed findings point to a notable gap: few studies systematically focus on India's manufacturing sector under current conditions. In sum, existing work implies that capital structure *can* influence performance, but the direction and strength of that influence vary widely. This underscores the need for targeted analysis of Indian manufacturing firms to clarify how debt policies truly impact their financial success.

3. Research Methodology

3.1. Research objective

i. To analyze the capital structure patterns of firms across different industries in India.
ii. To investigate the relationship between capital structure and firm performance in the Indian context.
iii. To investigate the impact of capital structure decisions on the financial performance of Indian firms

3.2. Research Design

The present study adopts a quantitative, explanatory research design. Given that the objective is to assess the impact of capital structure on firm performance, a causal-comparative approach using panel data is appropriate. The design allows analysis of both cross-sectional and time-series dimensions across Indian manufacturing firms.

3.3. Nature and Source of Data

The study will utilize secondary data collected from established financial databases such as CMIE Prowess, Capitaline, and company annual reports. Data will cover a five-year period (2019–2024) for manufacturing firms listed on the National Stock Exchange (NSE).

3.4. Sampling Design

A purposive sampling technique will be employed to select firms with complete and consistent financial data for the study period. Only NSE-listed manufacturing firms will be included, while firms from financial services, utilities, and non-manufacturing sectors will be excluded. The anticipated sample size is between 100 to 200 firms, subject to data availability.

3.5. Variables and Operational Definitions

Examine debt-equity ratios, short-term vs long-term debt usage, and firm-specific financing preferences.

Use accounting-based (e.g., ROA, ROE) and market-based (e.g., Tobin's Q) performance indicators.

a.) The independent variable is capital structure, measured using ratios such as:

- Debt-to-Equity Ratio
- Total Debt to Total Assets
- Long-term Debt to Capitalization

b.) The dependent variable is firm performance, captured through:

- Return on Assets (ROA)
- Return on Equity (ROE)
- Tobin's Q

c.) Control variables may include:

- Firm size (log of total assets)
- Firm age
- Sales growth

3.6. Analytical Tools and Techniques

Data will be analyzed using STATA or EViews. The following techniques will be applied:

a.) Descriptive statistics to summarize variable trends

b.) Correlation analysis to identify initial relationships

c.) Panel data regression models—Fixed Effects (FE) and Random Effects (RE)—to evaluate the impact of capital structure on performance

The Hausman test will guide model selection between FE and RE. Additional diagnostic checks for multicollinearity, heteroscedasticity, and autocorrelation will be conducted. If needed, robust standard errors or model transformations will be applied.

3.7. Model Specification

The regression model to be estimated is:

$$\mathbf{Performance_it = \alpha + \beta 1(CapitalStructure_it) + \beta 2(ControlVariables_it) + \varepsilon_it}$$

Where:

- i represents the firm
- t represents time
- Performance includes ROA, ROE, or Tobin's Q
- CapitalStructure includes leverage indicators
- ControlVariables includes firm-specific factors
- ε is the error term

3.8. Limitations

The study is limited to listed manufacturing firms, which may not capture the dynamics of smaller or unlisted entities. Reliance on secondary data introduces constraints related to reporting accuracy and availability. Certain qualitative or firm-specific variables may remain unobservable within the panel framework.

3.9. Tentative Chapters for the PHD

Chapter 1: Introduction

This chapter will present the background of the study, define the research problem, outline the objectives, scope, rationale, and significance of the research. It will also introduce key variables and contextualize the manufacturing sector in India.

Chapter 2: Review of Literature

A critical synthesis of existing national and international studies related to capital structure and firm performance. This chapter will identify theoretical foundations, empirical gaps, and justify the research approach.

Chapter 3: Research Methodology

This chapter will detail the research design, data sources, sample selection, variables used, and statistical tools. It will also explain the rationale for using panel data regression and discuss model specification and assumptions.

Chapter 4: Capital Structure Patterns in Indian Manufacturing Firms

Descriptive analysis of the sample firms' capital structures. This chapter will highlight trends in leverage ratios across sub-sectors, ownership types, and firm sizes.

Chapter 5: Empirical Analysis of the Impact of Capital Structure on Firm Performance

Presentation of regression results analyzing the relationship between capital structure and firm performance indicators (ROA, ROE, Tobin's Q), along with interpretation and robustness checks.

Chapter 6: Sectoral Comparison and Discussion

This chapter will explore whether the capital structure-performance relationship varies across different manufacturing sub-sectors. It will contextualize findings with theory and previous studies.

Chapter 7: Findings, Implications, and Suggestions

A comprehensive summary of findings, theoretical and practical implications, and policy recommendations. Suggestions for firms, regulators, and investors may be included.

Chapter 8: Conclusion and Scope for Future Research

Final conclusions based on research objectives. This chapter will also outline the limitations of the study and propose directions for further academic inquiry.